

[0035] FIG. 14 is a cross-sectional view of a portion of a semiconductor device of FIGS. 2-3 and 13 in another stage of processing useful to describe a method of forming a thyristor memory, and showing further photoresist patterning after pre-gate and pre-capacitor electrode structures have been removed and after spacers have been formed against the sidewalls of the second sacrificial material.

[0036] FIG. 15 is a cross-sectional view of a portion of a semiconductor device in another stage of fabrication useful for describing fabrication of a thyristor memory in accordance with an embodiment of the present invention, and showing conductive material over trench and patterned dielectric and also showing photoresist thereover.

[0037] FIG. 16. is a cross-sectional view of a portion of a semiconductor device of FIGS. 2-3 and 13-15, in another stage of fabrication useful to describe a method of forming a thyristor memory, and showing a gate electrode associated with an access transistor and a capacitor electrode associated with a thyristor.

[0038] FIG. 17 is a cross-sectional view of a portion of a semiconductor device of FIG. 16 in a further stage of processing useful to describe fabrication of a thyristor memory, and showing patterned gate and capacitor electrodes in addition to patterned photoresist for protecting certain regions of the thyristor during removal of dielectric between the gate and capacitor electrodes.

[0039] FIG. 18. is a cross-sectional view of a portion of the semiconductor device of FIG. 17 in another stage of fabrication, and showing a potential stringer artifact that may be associated with a particular method of forming a thyristor memory.

[0040] FIG. 19 is a cross-sectional view of a portion of a semiconductor device during a method of forming a thyristor memory according to another embodiment of the present invention, and showing patterning of photoresist over second sacrificial material before the formation of spacers against sidewalls of the second sacrificial material.

Detailed Description:

[0041] In the description that follows, numerous specific details may be set forth to provide an understanding of exemplary embodiments of the present invention. It will be understood, however, that alternative embodiments may comprise sub-combinations of the disclosed examples.